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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/565,993 | 04/03/2007 | Wyatt T. Riley | 030283 | 9475 |

23696 7590 04/01/2010
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| EXAMINER |
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QURESHI, AFSAR M

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2472

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|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
|-------------------|---------------|

04/01/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Response to Amendment

1. This Office Action is responsive to Amendment/Remarks received on 3/1/2010.
Amended claims are entered and made of record.

Response to Arguments

2. Rejection of claims 1-72 and 94 under 35 U.S.C § 101: Based on further explanation the rejection of claims 1-72 and 64 is withdrawn.

3. Rejection of Claims 1-28, 73-75, 77-81, 90-95, 100,101 under 35 U.S.C. § 103:

Applicant offered no arguments with respect to art rejection. However, further clarification is requested, with respect to claim 1, as to what limitations of the claims were addressed in view of cited art Fernandez and Maki.

Examiner discussed the claim 1 limitation “*determining a second position solution..... selecting between the first position and the second positionon a predetermined selection criteria*” in view of Fernandez and Maki on page 4, last paragraph of the Office Action.

Examiner has re-written the Office Action for clarity purpose and addressed the added limitation as below.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 73 (and the claims dependent thereon) recites the limitation "the first position" and, "the second position" in lines 4 and 5. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-10, 28, 73-75, 77-81 and 90-92 are rejected under 35 U.S.C. 102(b) as being anticipated by Watters et al. ('Watters' hereinafter).

Claims 1 and 28

Watters disclose a Global Positioning System (GPS) system and method of determining a geographic position of a remote unit, e.g., Mobile Telephone Unit (Col. 9, lines 46-59, figs. 2, 4 and 5 – *Claim 28*). Method steps include collecting differential GPS error correction data and sent to a mobile terminal along with TOA/TDOA, using

Art Unit: 2472

GPS pseudoranges of the reference stations depending on the geographic nature of the coverage area over a cellular network. A first position solution, e.g., pilot phase or delay, is calculated using first position network-based measurements in the case of bad geometry and non-network based measurements (Figure 4). (See 'Abstract', col. 3, lines 41 through col. 4, lines 8) including unit fault measurements, initial position measurements, GPS measurements, residual magnitude measurements, etc., (See col. 2, lines 14-38).

Watters further discloses that a combination of GPS satellite signals and the pseudosatellite signals are utilized to calculate position of the terminal (see col. 17, lines 59 through col. 18, lines 3), weighting technique is used to combine the results (see col. 23, lines 10-15).

As discussed above the first set of position is based on measurements such as pilot phase and round trip delay, etc. and second position solution is based on global positioning. Both position solutions are based upon separate measurements.

Claims 2-6

Watters discloses network based measurements include pilot phase measurements, round trip delay measurements, angle of arrival measurements, time of arrival measurements (see col. 4, lines 9-24, col. 24, lines 5-34, col. 8, lines 46-46, col. 5, lines 14-25, see Also the Abstract).

Claim 7

As to the measurements, Watters discloses various types of measurements, for example time difference of arrival measurements (TDOA) (see Col. 20, lines 14-43)

Art Unit: 2472

Claims 8-10

Watters discloses non-network-based measurements (e.g., global positioning, satellite based measurements, etc.) (See Title, Abstract, Col. 6, lines 30-35).

Claims 73-75, 90 and 91

In addition to limitations discussed in the rejection of claim 1 above, Watters discloses GPS receiver 750 receiving satellite signals by the GPS antenna 755 from the satellites and calculates the pseudoranges of each of the GPS satellites and the results are forwarded to DGPS processor 675 (see fig. 7 and col. 13, lines 1-47)

Claims 77-81 and 92.

The acquisition assistance data, by Watters, is in multipath in such that the signal originated is in a different sector than in which the mobile station is actually located thereby data is generated using cell sector data. Other limitations, such as using round delay trip, generating two sets of acquisition data and time of arrival data are already discussed in the rejection of claim 1 above. (See Col. 23, lines 50-55).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2472

6. Claims 11-27 and 93-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watters in view of Maki (US 5,323,163).

Claims 11-27

As discussed in the rejection of claim 1 above, Watters disclose non-network based measurements such as unit fault measurements, residual magnitudes measurements, etc., and evaluating the relative estimates but does not explicitly list GDOP, PDOP, HDOP, and Weighted DOP.

In the same field of endeavor, Maki discloses all the above non-network-based measurements and comparing respective figures of merits for the two position solutions (see Col. 2, lines 3-27, col. 5, lines 30-53, col. 7, lines 58 through col. 8, lines 1-8 and Abstract). As to *claims 26 and 27*, Maki takes advantage of the error volume characterization of the various dilutions of precision components in a GPS solution and selects the one with reduced errors in components of position, velocity, and time (see col. 6, lines 12-28).

Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to incorporate all DOP optimization special dilution of precision minimization measures, taught by Maki, to form the navigation solution with optimized accuracy in the desired components of time and to maximize the accuracy of the components of interest in the GPS, as desired by Watters.

Claims 93-95

As discussed in the rejection of claims 1-28, Watters discloses a base station implementing position location (see col. 8, lines 65-67, fig. 4A, also, col. 13, lines 55-67).

Similarly, in an alternative embodiment, Watters discloses position determination device included in the remote unit (mobile terminal) (see fig. 7).

As discussed in the rejection of claims 2-6 above Watters discloses network based measurements include pilot phase measurements, round trip delay measurements, angle of arrival measurements, time of arrival measurements (see col. 4, lines 9-24, col. 24, lines 5-34, col. 8, lines 46-46, col. 5, lines 14-25, see Also the Abstract). Similarly, Watters disclose assorted network and non-network based measurements as disclosed above, however, Watters does not explicitly disclose non-network –based measurements, such as, geometric dilution of precision measurements (GDOP); position dilution of precision measurements (PDOP); horizontal dilution of precision measurements (HDOP) weighted dilution of precision measurements (weighted DOPs); etc.,

Maki, in the same field of endeavor, specifically discloses all special dilution of precision minimization measurements (see figs. 1-5 and col. 5, lines 7 through col.6, lines 46)

Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to be able to utilize all special DOP GPS measurements within the combined invention of Watters and Fernandez in order to obtain an optimized accuracy in the desired orthogonal component(s) of position and in multiple navigation solutions.

Allowable Subject Matter

7. Claims 29-72, 76, 96-101 are allowed over prior art of record.

Prior art of record fails to disclose method step of selecting a desired final-fix position solution of the remote unit based on respective figures of merit of the desired prefix solution and the final-fix position solution and the estimated errors of the position solution (claim 96).

8. Claims 82-89 remain rejected under 35 USC 112, 2nd paragraph, but would be allowable subject to removal of said rejection (lack of antecedent basis), and, if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The subject matter considered to be allowable: Prior art of record fails to disclose method steps of generating data using an advanced forward link trilateration covariance matrix.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). No new prior art is used to reject claims. Examiner notes that the prior art, used to reject the claims, was available to the Applicant at the time of the Office

Art Unit: 2472

Action mailed 10/28/2009. An amendment to claims 82-89, *as stated in paragraph 8*, will be entered subject to application becomes allowable.

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AFSAR M. QURESHI whose telephone number is (571)272-3178. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272 7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2472

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/26/2010

/Afsar M Qureshi/
Primary Examiner
Art Unit 2472